(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 February 2004 (26.02.2004)

PCT

(10) International Publication Number
WO 2004/016922 A3

(51) International Patent Classification[7]: G01N 07/00, 27/26

(21) International Application Number: PCT/US2003/025481

(22) International Filing Date: 14 August 2003 (14.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/402,948 14 August 2002 (14.08.2002) US

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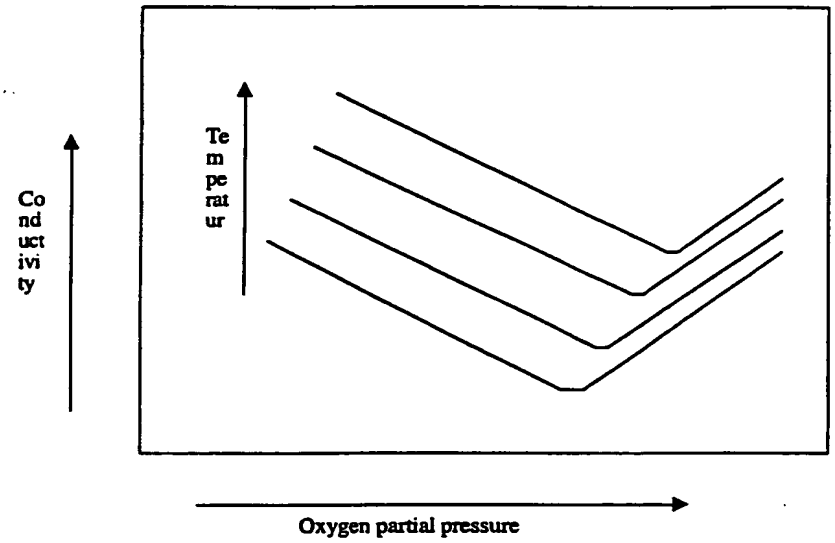
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: EXHAUST GAS OXYGEN SENSOR



(57) Abstract: The present invention identifies a formulation for a subgroup of perovskite structure oxides that overcomes the outstanding problems for oxygen sensing in a combustion environment. The sub group has a formula ABO_x where A is a large 3-valent ion, such as Pr^{3+}, B is a transition metal ion, which is substituted to a small degree by tungsten (which has a stable valence of 6), and x indicates that the oxide can sustain a variable oxygen stoichiometry. A preferred general formulation is a single-phase perovskite structure $AB_{1-Y}W_YO_X$ where y preferably lies between 0.03 and 0.15, more preferably between 0.05 and 0.10 and where x is close to 3. Preferred examples of compositions that can achieve these advantages include, but are not limited to, $PrFe_{0.95}W_{0.05}O_x$ and $LaFe_{0.05}W_{0.05}O_x$.

WO 2004/016922 A3

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
6 May 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/25481

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 07/00, 27/26
US CL : 73/23.31, 23.32, 31.05, 31.06; 204/424

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 73/23.31, 23.32, 31.05, 31.06; 204/424

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,447,705 A (PETIT et al) 05 September 1995 (05.09.1995), column 1 line 50 through column 2 line 39.	1-13
Y	US 4,542,640 A (CLIFFORD) 24 September 1985 (24.09.1985), column 7 line 58 through column 8 line 10, column 9 line 14 through column 10 line 5, and column 11 line 61 through column 12 line 16.	1-13
A	US 4,110,254 A (LAUDER) 29 August 1978 (29.08.1978), see abstract and columns 2-4.	1-13
A,P	US 2003/0121801 A1 (INABA et al) 03 July 2003 (03.07.2003), page 2.	1-13

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☐ See patent family annex.

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Date of the actual completion of the international search
08 December 2003 (08.12.2003)

Date of mailing of the international search report
22 MAR 2004

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Form PCT/ISA/210 (second sheet) (July 1998)